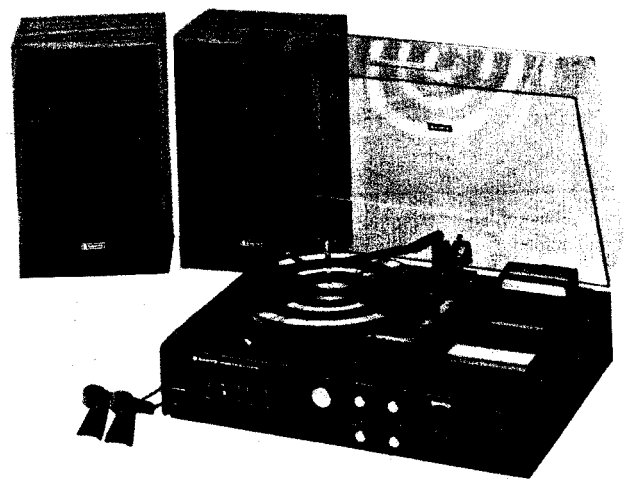
SANYO

SANYO
STEREO MUSIC SYSTEM
GXT 4615K
SERVICE MANUAL



A PRODUCT OF SANYO ELECTRIC CO., LTD.

SPECIFICATIONS

GENERAL

Transistors	
2SC668 E x 1	FM RF Amplifier
2SC668 D x 1	FM Converter
2SC930 D x 1	AM Converter
2SC1648 x 2	Pre. Amplifier
2SC537 E x 2	Bias Oscillator
2SC1647 x 1	MPX Amplifier
Diodes	
BZ090 x 1	Voltage Regulator
1S1588 x 1	Transistor Protector
1S188 x 1	FM A.G.C.
1S188 x 1	AM A.G.C.
1S1588 x 1	FM Limiter
1S188 x 2	FM Discriminator
1S188 x 1	Rectifier
10D1 x 3	Rectifier
SLP-24 x 1	Dial Pointer (LED)
IC's	
LA1201 x 1	FM & AM IF Amplifier
BA1310 x 1	MPX Switching & Amplifier
LD3150 x 2	Cassette Pre. Amplifier
LA4032P x 2	Main Amplifier
Power source	120/200/220/240V AC 50/60 Hz
Dimensions	505(W) x 365(D) x 210(H)mm
Power consumption	23W
Weight	Approx. 8.5 kg (19 lbs.)

TUNER SECTION

Frequency ranges	AM 530 – 1605 KHz
	FM 88 – 108 MHz
Intermediate frequency	AM 455 KHz
	FM 10.7 MHz
Sensitivity S/N = 20 dB	AM 280 uV/m
S/N = 30 dB	FM 10 uV
Signal-to-noise ratio	AM 44 dB
	FM 50 dB
FM MPX separation	30 dB

AMP SECTION

Output power	2.5 Watt (10% THD)
Frequency response	30 – 25,000 Hz
Power bandwidth	45 – 20,000 Hz
Signal-to-noise ratio	60 dB
Output terminal	
Speaker impedance	8 ohm
Tape playback output	300 mV
	400K ohm imp.
Input terminal	
Tape recording	200 mV
signal level	50K ohm imp.

PLAYER SECTION

Turntable speed	33-1/3, 45 & 78 rpm
Pick-up system	Ceramic Stereo Cartridge
Wow & flutter	0.2%
Turntable diameter	10"

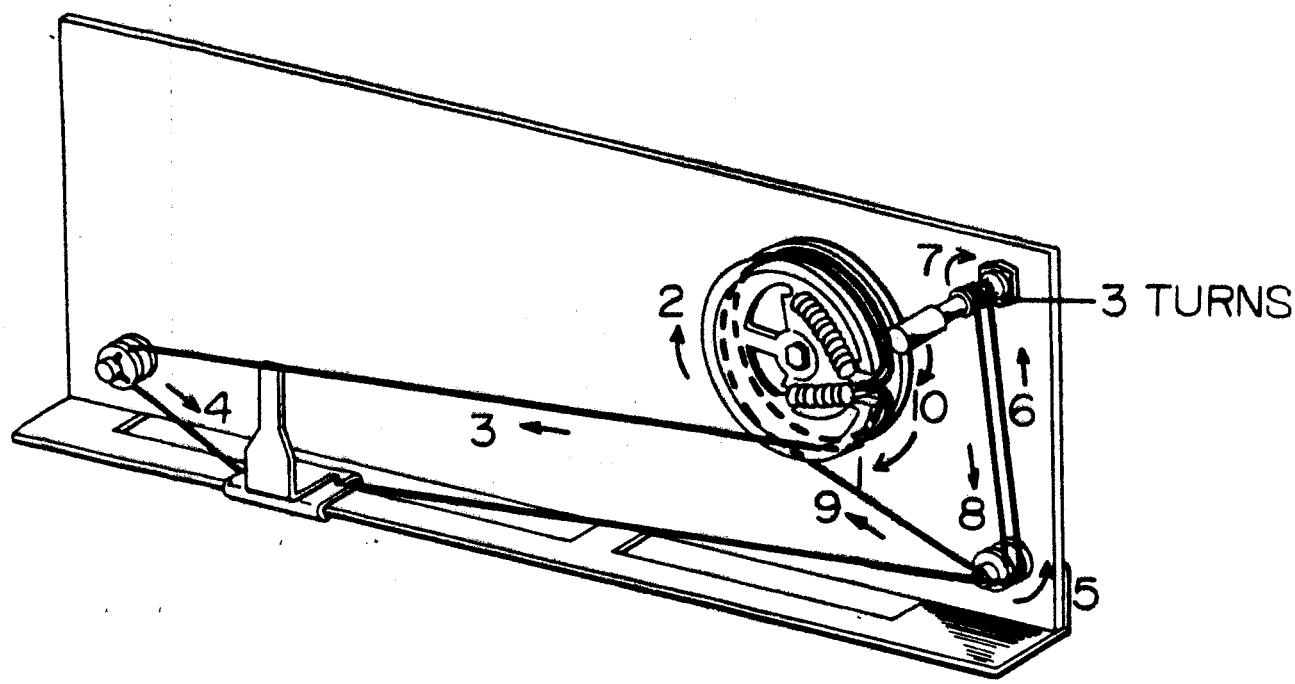
CASSETTE SECTION

Recording system	AC Bias
Erasing system	AC Erasing
Tape speed	1-7/8 inch/sec.
Rewinding & F-Forward	120 sec. (C-60)
Wow & flutter	0.2%

SPEAKER SECTION

Speaker size	4-3/4"
Input power	5 Watt
Dimensions	9-1/8"(W) x 6-1/8"(D) x 14-3/8"(H)
	230(W) x 155(D) x 365(H)mm
Weight	Approx. 1.9 kg (4-3/16 lbs.)

DIAL CORD STRING



RADIO ALIGNMENTS

AM IF AND RF ALIGNMENT

Step	Mode	Signal Input	Frequency and Modulation of SSG	Dial Setting of Radio	Components to be Adjusted for Max. Output
1	MW	Thru Loop Antenna	455 KHz 30%	Lower end	IFT. T-7, T-8, T-9
2	MW		515 KHz 30%	Lower end	OSC coil L-6
3	MW		1650 KHz 30%	Upper end	OSC trimmer CT-4
4	MW		600 KHz 30%	600 KHz	Ant. coil L-5
5	MW		1400 KHz 30%	1400 KHz	Ant. trimmer CT-3

Repeat step 4 and 5.

BIAS CURRENT ADJUSTMENT
Adjust SVR-1 to develop 0.65V across Tp-1 and Tp-2.

FM IF ALIGNMENT

Step	Alignment Frequency	Test Equipment Connection	Adjustment
1	10.7 MHz	Connect sweep generator to CT-2 and oscilloscope to test point Tp-4	Tune T1, T2, T3, T4 and T5 for max. gain and symmetry of response curve (Fig. 1)
2	10.7 MHz	Connect sweep generator to CT-2 and oscilloscope to test point R110	Tune T6 for symmetrical "S" curve (Fig. 2)

RF ALIGNMENT

Step	Signal Input	Frequency and Modulation of SSG	Dial Setting of Radio	Components to be Adjusted for Max. Output
1	Thru dummy ANT. Fig. 3	87.0 MHz 30%	Lower end	OSC coil L-4
2		110 MHz 30%	Upper end	OSC trimerm CT-2
3		90 MHz 30%	90 MHz	RF coil L-2
4		106 MHz 30%	106 MHz	RF trimmer CT-1

FM MPX ADJUSTMENT

Subject	Component to be Adjusted	Test Point	Test Instrument
Frequency Adjustment (19,000 Hz ±50 Hz)	SVR-101	TP-101	Frequency Counter (Input Impedance: 100K ohm)

RECORDING BIAS

Subject	Component to be Adjusted	Test Point	Test Instrument
Bias Current Adjustment (4.5 mV)	SVR 601 (L channel) SVR 701 (R channel)	R611 R711	V.T.V.M.

Repeat STEP 3, 4, 5 and 6.

Fig. 1 Symmetrical response curve

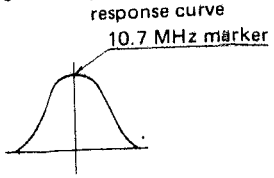


Fig. 2

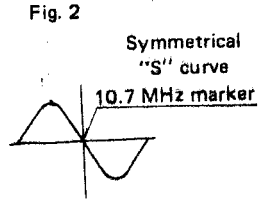
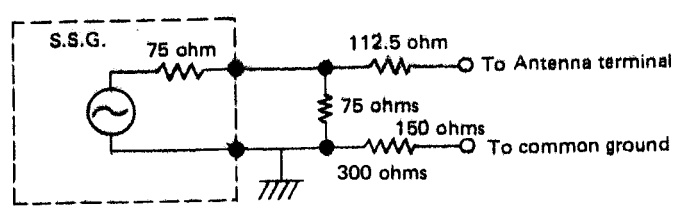
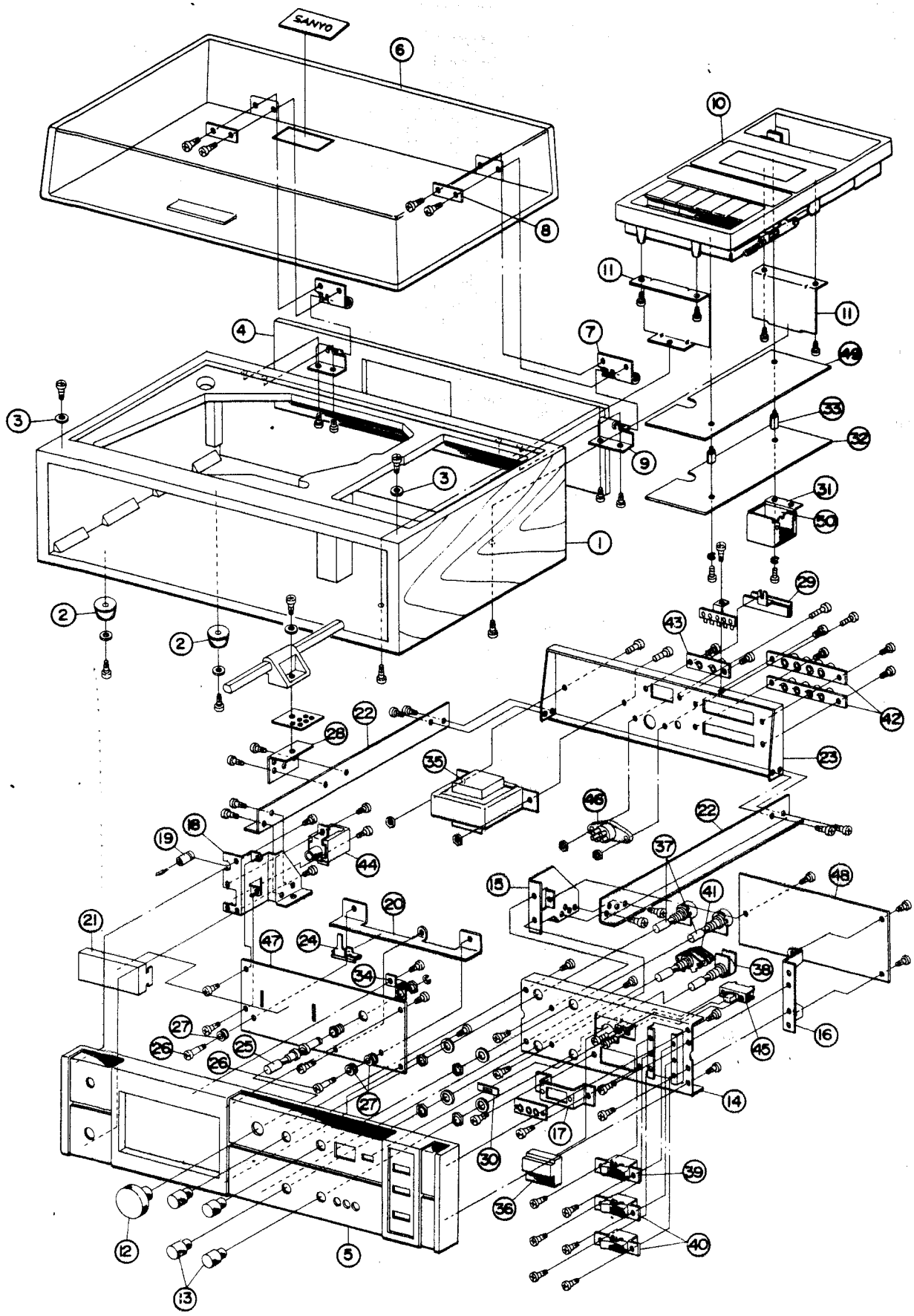


Fig. 3



CABINET EXPLODED VIEW



PARTS LIST

Key No.	Part No.	Description	Q'ty
PACKAGE PARTS			
	R-4771367a	Instruction book	1
	R-4170614	Styrofoam cushion, Set right	1
	R-4170615	Styrofoam cushion, Set left	1
	R-4170097	Styrofoam cushion, Speaker box	2
	R-4072585	Individual carton	1
	R-4770194	Caution label	1
	R-4771387	Tag, Power	1
	R-397194	Cover, Stylus	1
	R-357269	Cover, Dust	1
		Ribbon, Pick up, 12 x 360	1
		Polyethylene bag, 100 x 240, AC cord	1
	R-357268	Polyethylene bag, Set	1
	R-357228	Polyethylene bag, Dust cover	1
		Polyethylene bag, 100 x 240, Mic	1
		Polyethylene bag, 160 x 245, Instruction book	
	R-357175	Polyethylene bag, Speaker box	1
ACCESSORIES			
	R-S07137	Microphone, 400 ohms, w/Remote Switch	1
	R-S07138	Microphone, 400 ohms	1
	R-S07037	Cassette Tape	1
	R-S857b	Plug Adaptor, Siemens type	1
	R-S8575b	Plug Adaptor, England type	1
CABINET APPEARANCE PARTS			
1	R-S870673	Cabinet assembly	1
	R-1170717	Metal bracket, Dust cover	(1)
	R-3970762	Base	(2)
		Screw, Round Hd. Wood, 3.1 x 10	(2)
		Washer, Flat, 3.3 x 10 x 1	(2)
2	R-3970762	Base	2
		Screw, Pan Hd., 4 x 12	2
		Washer, Flat, 4 x 10 x 0.5	2
3	R-3970597	Fix plastic board	2
		Screw, Flat Hd. Wood, 2 x 8	2
4	R-4072583	Rear cover	1
		Screw, Round Hd. Wood, 3.1 x 13	3
		Tap. Screw, Pan Hd., 3 x 8	2
5	R-A71292	Panel assembly, with dial scale	1
6	R-A71293	Dust cover assembly	1
7	R-S870669a	Hinge A, Dust cover	2
8	R-1170718a	Metal bracket	2
		Screw, Pan Hd., 3 x 8	4
9	R-1170716a	Hinge B, Cabinet	2
		Screw, Round Hd. Wood, 3.1 x 13	4
10	R-A71294	Panel assembly, Cassette	1
11	R-127911	Fix metal, Cassette panel Front & Rear	2
		Tap. Screw, Pan Hd., 3 x 8	4
12	R-3970901	Knob, Tuning	1
13	R-3970760L	Knob, Tuning/Volume/Function	4
		Screw, Nut & Washer	
		Screw, Pan Hd., 4 x 12	7
		Washer, Lock, 4.5 x 16 x 0.8t Chassis — Cabinet	7
SPEAKER BOX APPEARANCE PARTS			
	R-A71120	Speaker box complete	2
	R-S870715	Speaker box	(2)
	R-4071621	Rear cover	(2)
	R-327263a	Fix plastic board	(2)
	R-2670428	Badge	(2)
		Nut, SPN-2.6	(4)
		Screw, Round Hd. Wood, 3.1 x 13	(16)
	R-S07159	Speaker	2
		Nut, Hex Hd. with Washer, 3	8
	R-S37039-1	Cord assembly	2

Key No.	Part No.	Description	Q'ty
CHASSIS MECHANICAL PARTS			
14	R-1270066	Chassis	1
		Tap. Screw, Pan Hd., 3 x 10	4
15	R-1270067	Metal bracket, Amp. P.C.B. left	1
16	R-1270068	Metal bracket, Amp. P.C.B. right	1
		Tap. Screw, Pan Hd., 3 x 8	4
17	R-1270069	Metal bracket, Mic terminal	1
		Tap. Screw, Pan Hd., 3 x 8	2
18	R-1270070	Metal bracket, RF P.C.B. left	1
		Tap. Screw, Pan Hd., 3 x 10	5
19	R-447886	Holder, Power lamp	1
20	R-1270071	Rail, Pointer	1
		Tap. Screw, Pan Hd., 3 x 6	1
21	R-1270072	Back plate	1
22	R-1270073a	Metal bracket, Metal bracket left — Back chassis	2
		Tap. Screw, Pan Hd., 3 x 8	8
23	R-1270074	Chassis, Back	1
24	R-1270088	Pointer	1
25	R-S870668	Shaft assembly, Tuning	1
		Nut, Hex Hd., 8	1
26	R-147054-2	Shaft, Pulley	2
		Washer, Flat, 3.3 x 8 x 0.5t Pulley shaft — RF P.C.B.	1
27	R-325017	Pulley	3
		Dial cord string, 0.5 x 840mm	1
28	R-127355	Metal bracket, Antenna coil	1
		Tap. Screw, Pan Hd., 3 x 8	2
	R-33226	Drum	1
	R-247136	Special screw, Drum	1
	R-155026	Coil spring, Drum	2
	R-4170321	Metal plane, Level meter	1
	R-377035	Bushing, AC cord	1
30	R-327033	Mask sheet, Level switch	1
	R-277346	Heat sink, IC	1
		Tap. Screw, Pan Hd., 3 x 8	4
31	R-117739c	Shield case, Cassette OSC	1
32	R-277233	Shield plate, Cassette P.C.B.	1
		Tap. Screw, Pan Hd. with Washer "A" 2.6 x 6	4
33	R-247244	Special screw, Shield plate	4
	R-415279	Mold plane, Cassette OSC P.C.B.	1
34	R-1270138	Metal bracket, Tuning shaft	1
		Tap. Screw, Pan Hd., 3 x 10	2
	R-157178	Spring	2
		Tap. Screw, Pan Hd., 3 x 8	1
		Washer, Flat, 3.3 x 10 x 1t	1
	R-127779a	Metal bracket, Cassette leaf switch	1
	R-3970969	Lamp holder, Stereo	1
		Tap. Screw, Pan Hd., 3 x 6	1
	R-1270216	Metal bracket, Mic terminal	1

Key No.	Ref. No.	Part No.	Description	Q'ty
CHASSIS ELECTRICAL PARTS				
	L5	R-S870694	Antenna coil assembly	1
		R-W27038	Antenna coil	(1)
		R-35202	Holder	(1)
		R-S37022	Terminal	(1)
			Tap. Screw, Pan Hd., 3 x 10	1
			Washer, Flat, 3 x 8 x 0.5	1
35	PT801	R-W77259	Power trans.	1
			Screw, Pan Hd., 4 x 8	2
			Washer, Spring, 4	2
			Nut, Hex Hd., 4	2
36		R-S5774	Indicator	1
37	VR201,301	R-R1167069	Variable resistor, 50K-A, Volume	2
38	VR202,302	R-R1167061	Variable resistor, 50K x 2-A, Tone	1
		R-S3708-3	AC cord, L-1850	1
		R-S1733	Solderless connector	4
39	S6	R-S47185	Rocker switch, Power	1
40	S3,5	R-S27186	Rocker switch, 2/4 CH Monitor	2
			Tap. Screw, Pan Hd., 3 x 8	6
41	S1-1-4	R-S47121	Rotary switch	1
42	J1,2	R-S2780	Jack, SPC AUX	2

PARTS LIST

Key No.	Ref. No.	Part No.	Description	Q'ty
CHASSIS ELECTRICAL PARTS				
43		R-S1790	Terminal, FM antenna	1
			Tap. Screw, Pan Hd., 3 x 8	6
		R-S2776	Plug, 9P	1
		R-S2771	Socket, 7P	1
		R-S2770	Plug, 7P	1
		R-S3728	Lug, 5P, AUX	1
			Tap. Screw, Pan Hd., 3 x 8	1
			Washer, Spring, 3	1
		R-S3741	Lug, 3P	1
			Tap. Screw, Pan Hd., 3 x 8	1
		R-S17078-6	Pilot lamp, Stereo Power illumination, 6V 21mA	2
44	J3	R-S2766	Jack, Headphone	1
			Tap. Screw, Flat Hd., 3 x 8	2
	J4,5,6	R-S27172	Mic Jack	1
45	S2	R-S47208	Slide switch, Level meter	1
			Screw, Pan Hd., 2.6 x 4	2
		R-37024-3	Cord assembly, Phono out	1
		R-S4809	Slide switch, Cassette	2
		R-S2770	Plug, 7P	1
		R-S2777	Socket, 9P	1
		R-S2771	Socket, 7P	1
		R-157041	Spring pin, Cassette mechanism — Slide switch	2
			Tap. Screw, Pan Hd., 3 x 8, C. Board	5
			SEMICONDUCTORS	
			Diode, SLP-24, Power	1
			RESISTORS	
(Resistors are of carbon type, ±10% allowance and 1/4W unless otherwise noted.)				
		R241,341	330K ohm	2
		R244,344	100K ohm	2
		R245,345	33K ohm	2
		R246,346	22K ohm	2
		R242,342	Solid, 100 ohm, ±10%, 1/2W	2
		R807	Solid, 560 ohm, ±10%, 1/2W	1
			CAPACITORS	
		C 241,341	Ceramic, 20pF, ±10%, 50V	2
		C852	Ceramic, 0.04mfd, +100 –0%, 50V	1
		C853	Ceramic, 0.01mfd, +100 –0%, 50V	1
		C242,342	Mylar, 0.033mfd, ±20%, 50V	2
		C640	Mylar, 0.015mfd, ±20%, 50V	1

Schematic Location	Part No.	Description	Q'ty
TUNER P.C.B. ASSEMBLY			
	R-A71295	Circuit board assembly, Tuner (Key No. 47)	1
L1	R-W4718	Coil	1
L2	R-W9701	VHF coil	1
L3	R-W9018	VHF coil	1
L4	R-W9702	VHF coil	1
L6	R-W8778	OSC coil	1
CT1,2, 3,4	R-C1711	Variable capacitor	1
CV1,2, 3,4	R-445073	Cushion, VC	1
		Tap. Screw, Pan Hd. with Washer "A" 1.6 x 6	2
F1	R-W1772	Filter	1
SVR1	R-R110704	Preset resistor, 50K	1
T1	R-W5T757	IF transformer	1
T2	R-W5T758	IF transformer	1
T3	R-W5T759	IF transformer	1
T4	R-W5T760	IF transformer	1

Schematic Location	Part No.	Description	Q'ty
TUNER P.C.B. ASSEMBLY			
T5	R-W5T761	IF transformer	1
T6	R-W5T762	IF transformer	1
T7	R-W5T763	IF transformer	1
T8	R-W5T764	IF transformer	1
T9	R-W5T765	IF transformer	1
	R-247493	Wirerap terminal	3
	R-235128	Eyelet lug	14
		Eyelet, 2 x 3	1
L101,102	R-W1751	Choke coil, 40mH	2
SVR101	R-R110718	Preset resistor, 10K	1
		SEMICONDUCTORS	
IC1		Integrated circuit, LA1201	1
TR1		Transistor, 2SC668	1
TR2		Transistor, 2SC930	1
TR3		Transistor, 2SC930	1
D1,7		Diode, 1S1588	2
D2,3,4		Diode, 1S188 FM	3
D5		Diode, 1S188 AM	1
		Integrated circuit, BA1310	1
TR101		Transistor, 2SC1647	1
		RESISTORS	
(Resistors are of carbon type, ±10% allowance and 1/4W unless otherwise noted.)			
R13,24, 33		100 ohm	3
R6,7		220 ohm	2
R27		330 ohm	1
R1		390 ohm	1
R38		560 ohm	1
R11,39		680 ohm	2
R29,40		820 ohm	2
R20,21		1K ohm	2
R10		1.5K ohm	1
R2,4, 12,37		2.2K ohm	4
R36		2.7K ohm	1
R26		4.7K ohm	1
R22,23, 30,32		5.6K ohm	4
R8		5.6K ohm	1
R35		8.2K ohm	1
R25		10K ohm	1
R9		15K ohm	1
R34		33K ohm	1
R3		39K ohm	1
R5		180K ohm	1
R16		1K ohm	1
R15		6.8K ohm	1
R19		270 ohm	1
R14		1.2K ohm	1
R101		270K ohm	1
R102		680 ohm	1
R103,104, 105		3.9K ohm	3
R114,115		120 ohm	2
R107		15K ohm	1
R108		1K ohm	1
R109,112		3.3K ohm	2
R110,111		5.6K ohm	2
R113		39K ohm	1
		CAPACITORS	
C12		Ceramic, 2pF, ±0.25pF, 50V, SL	1
C5,26		Ceramic, 3pF, ±0.25pF, 50V, SL	2
C8		Ceramic, 7pF, ±10%, 50V, SL	1
C25		Ceramic, 10pF, ±10%, 50V, SL	1
C4		Ceramic, 15pF, ±10%, 50V, SL	1
C10		Ceramic, 24pF, ±10%, 50V, SL	1
C6,28		Ceramic, 30pF, ±10%, 50V, SL	2
C32		Ceramic, 100pF, ±10%, 50V, SL	1
C29,31		Ceramic, 200pF, ±10%, 50V, SL	2
C7		Ceramic, 500pF, ±10%, 50V, SL	1
C9		Ceramic, 0.001mfd, ±10%, 50V, YW	1
C23,24		Ceramic, 0.01mfd, +100 –0%, 50V, YZ	2

PARTS LIST

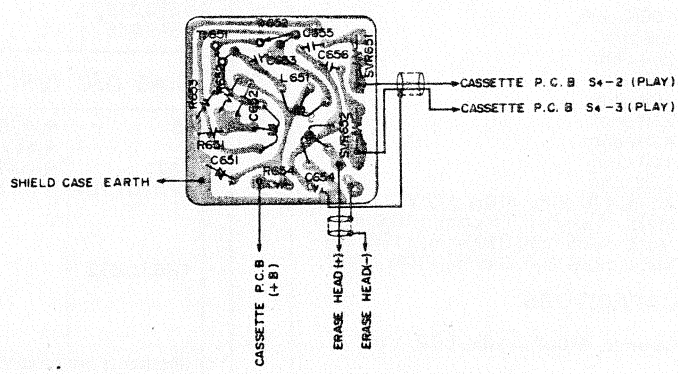
Schematic Location	Part No.	Description	Q'ty
TUNER P.C.B. ASSEMBLY			
C22		Ceramic 0.02mfd, +100 −0%, 50V, YZ	1
C14		Ceramic, 0.02mfd, +100 −0%, 50V, BC	1
C19,20, 41		Ceramic, 0.04mfd, +100 −0%, 50V, YZ	3
C51,52, 54		Ceramic, 0.02mfd, +100 −0%, 50V, YM	3
C53		Ceramic, 0.01mfd, +100 −0%, 50V, YM	1
C15		Ceramic, 0.047mfd, ±20%, 25V, BC	1
C44		Mylar, 0.0047mfd, ±20%, 50V	1
C27,39, 43		Mylar, 0.01mfd, ±20%, 50V	3
C33,45		Mylar, 0.022mfd, ±20%, 50V	2
C46		Styrol, 130pF, ±5%, 50V	1
C11		Styrol, 200pF, ±5%, 50V	1
C103		Mylar, 0.047mfd, ±20%, 50V	1
C111,115		Mylar, 0.0068mfd, ±20%, 50V	2
C116,117		Mylar, 0.022mfd, ±20%, 50V	2
C109,110		Ceramic, 0.0047mfd, ±10%, 50V, YW	2
C113,114		Ceramic, 0.001mfd, ±10%, 50V, YW	2
C112		Styrol, 460pF, ±5%, 50V	1
C21,30		Electrolytic 6.3V/4.7mfd	2
C38		Electrolytic 10V/1mfd	1
C34,40		Electrolytic 10V/10mfd	2
C35		Electrolytic 10V/220mfd	1
C14		Electrolytic 25V/100mfd	1
C118		Electrolytic 16V/47mfd	1
C119		Electrolytic 25V/47mfd	1
C105,106		Electrolytic 16V/0.22mfd Alsicon	2
C104		Electrolytic 16V/0.47mfd Alsicon	1
C107,108		Electrolytic 10V/10mfd	2
C101,102		Electrolytic 10V/1mfd	2
C60		Electrolytic 25V/330mfd	1
AUDIO AMP CIRCUIT BOARD ASSEMBLY PARTS			
	R-A71296	Circuit board assembly, Audio Amp.	1
	R-237050	Eyelet lug	4
	R-12004	Oval lug	1
		Eyelet, 2 x 3	20
		SEMICONDUCTORS	
IC		Integrated circuit, LA4032P	2
TR201,301		Transistor, 2SC1648	2
D801,802, 803		Diode, SM-1 or 10D-1	3
		RESISTORS	
(Resistors are of carbon type, ±10% allowance and 1/4W unless otherwise noted.)			
R211,311		100K ohm	2
R213,313		1M ohm	2
R214,314		560 ohm	2
R215,315		12K ohm	2
R216,316		15K ohm	2
R217,317		270 ohm	2
R201		4.7K ohm	1
R801		100 ohm	1
R805		1.5K ohm	1
R804		Solid, 470 ohm, ±10%, 1/2W	1
R802		Metal oxide film, 68 ohm, ±10%, 4W	1
R803		Metal oxide film, 220 ohm, ±10%, 2W	1
R243,343		Metal oxide film, 8 ohm, ±10%, 3W	1
		CAPACITORS	
C216,316, 244,344		Ceramic, 470pF, ±10%, 50V, YW	4
C220,320		Ceramic, 0.0015mfd, ±10%, 50V, YW	2
C804,805		Ceramic 0.04mfd, +100 −0%, 50V, YZ	2
C218,318		Mylar, 0.0047mfd, ±20%, 50V	2
C219,319		Mylar, 0.001mfd, ±20%, 50V	2
C222,322, 851		Electrolytic 16V/470mfd	3
C221,321		Electrolytic 16V/220mfd	2
C801		Electrolytic 25V/330mfd	1
C217,317		Electrolytic 16V/33mfd	2

Schematic Location	Part No.	Description	Q'ty
AUDIO AMP CIRCUIT BOARD ASSEMBLY PARTS			
C201		Electrolytic 25V/100mfd	1
C213,313		Electrolytic 25V/1mfd	2
C803		Electrolytic 25V/2200mfd	1
C211,311, 215,315		Electrolytic 16V/1mfd Alsicon	4
C854		Electrolytic 10V/33mfd	1
C802		Electrolytic 25V/470mfd	1
CASSETTE AMP CIRCUIT BOARD ASSEMBLY PARTS			
	R-A71298	Circuit board assembly, Cassette Amp. (Key No. 49)	1
L601,701	R-W1771	Bias trap	2
	R-237093	Eyelet lug	2
	R-235128	Eyelet lug	5
	R-237059	Oval lug	1
		Eyelet, 2 x 3	20
		SEMICONDUCTORS	
		Integrated circuit, LD3150	2
D851		Diode, BZ-090	1
D852		Diode, 1S188 AM	1
		RESISTORS	
(Resistors are of carbon type, ±10% allowance and 1/4W unless otherwise noted.)			
R602		1K ohm	1
R601		1.2K ohm	1
R613,713		8.2K ohm	2
R614,714		2.2K ohm	2
R615,715		47K ohm	2
R616,716		2.7K ohm	2
R617,717		56K ohm	2
R851		22 ohm	1
R612,712		1K ohm	2
R611,711		Carbon, 10 ohm, ±5%, 1/4W	2
		CAPACITORS	
C617,717		Ceramic, 0.001mfd, ±10%, 50V, YW	2
C620,720, 621,721		Ceramic, 470pF, ±10%, 50V, YW	4
C613,713		Ceramic 330pF, ±20%, 50V, YW	2
C616,716		Mylar, 0.022mfd, ±20%, 50V	2
C618,718		Styrol, 1100pF, ±10%, 50V	2
C601		Electrolytic 25V/100mfd	1
C602		Electrolytic 16V/220mfd	1
C614,714		Electrolytic 16V/100mfd	2
C611,711, 612,712, 615,715		Electrolytic 16V/1mfd Alsicon	6
BIAS OSC CIRCUIT BOARD ASSEMBLY PARTS			
50	R-A7685	Circuit board assembly, Bias Oscillator	1
	R-417322	Printed circuit board	1
L631	R-W8737	OSC coil	1
SVR601,701	R-R11018	Preset resistor, 250 K	2
		SEMICONDUCTORS	
TR631,632		Transistor, 2SC537	2
		RESISTORS	
(Resistors are of carbon type, ±10% allowance and 1/4W unless otherwise noted.)			
R631		5.6 ohm	1
R632		220 ohm	1
R633		33K ohm	1
R634		3.9K ohm	1

PARTS LIST

Schematic Location	Part No.	Description	Q'ty
BIAS OSC CIRCUIT BOARD ASSEMBLY PARTS			
		CAPACITORS	
C632		Mylar, 0.022mfd, ±20%, 50V	1
C631		Mylar, 0.01mfd, ±20%, 50V	1
C635		Ceramic, 0.0015mfd, ±10%, 50V	1
C633,634		Styrol, 500pF, ±10%, 50V	2
C636		Electrolytic 16V/220mfd	1
CASSETTE MECHANISM			
	R-S97029	Cassette unit assembly, TM-68MSN3	1
	R-S87863	Mechanism	(1)
	R-S5732	Motor	(1)
	R-3970926	Cassette cover	(1)
	R-327312	Cover	(1)
	R-3970902a	Knob	(6)
	R-S0814	Recording head	1
	R-S0815	Erasing head	1
		Screw, Pan Hd., 2 x 4	3
		Screw, Pan Hd., 2 x 6, Head mtg.	1
		Tap. Screw, Pan Hd., 3 x 10 Cassette panel – Mechanism	4
		Tap. Screw, Pan Hd., 2.3 x 4 Cassette leaf switch mtg.	1
PLAYER MECHANISM			
	R-S5754	Motor unit, BSR C-123R2	1
	R-S07156	Cartridge	1
	R-S07154	Cartridge	(1)
	R-S07150	Stylus	(1)
		Screw, Flat Hd., 2.6 x 6	1
		Cartridge mtg.	1

BIAS OSCILLATOR CIRCUIT BOARD

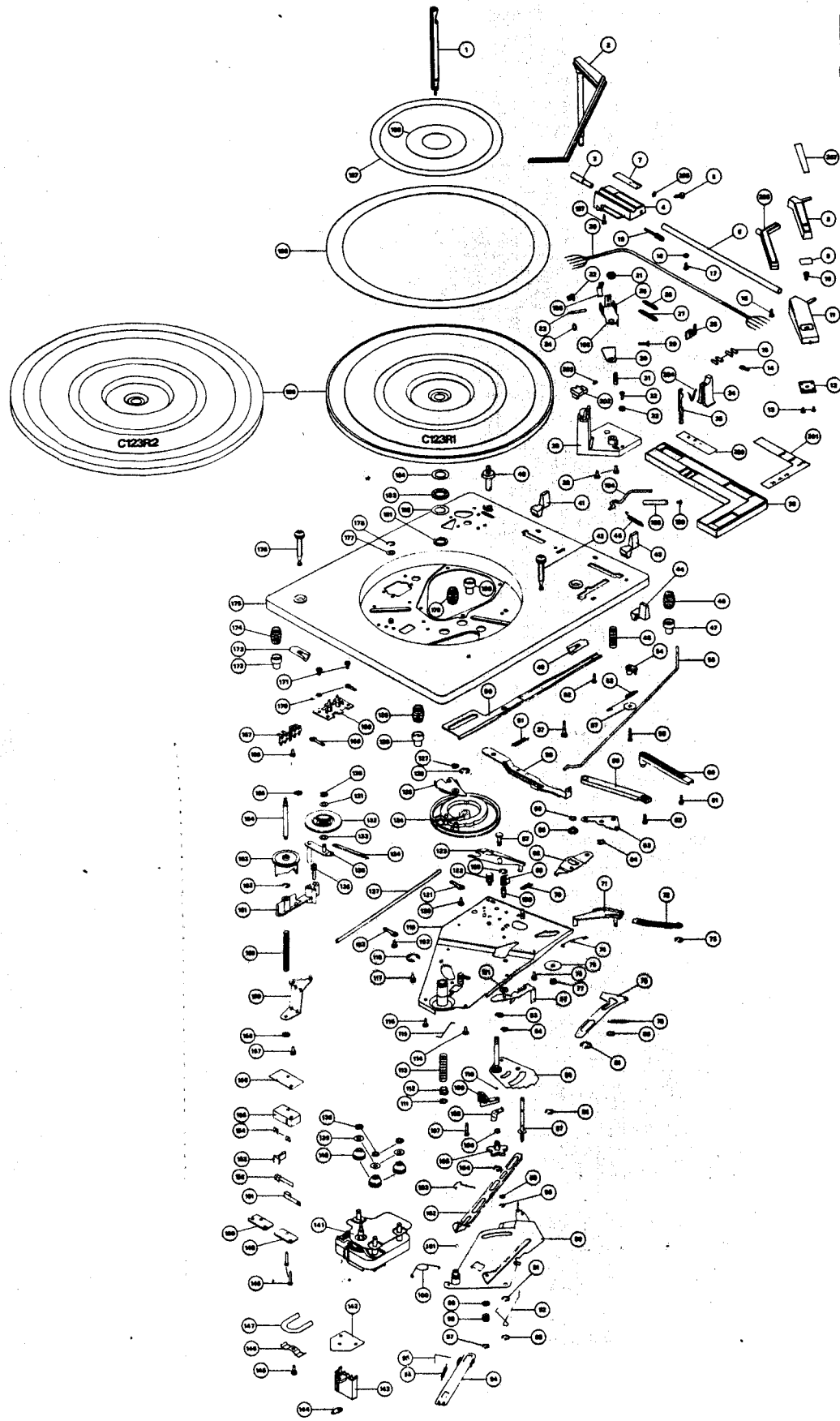


PARTS LIST (PHONO PLAYER)

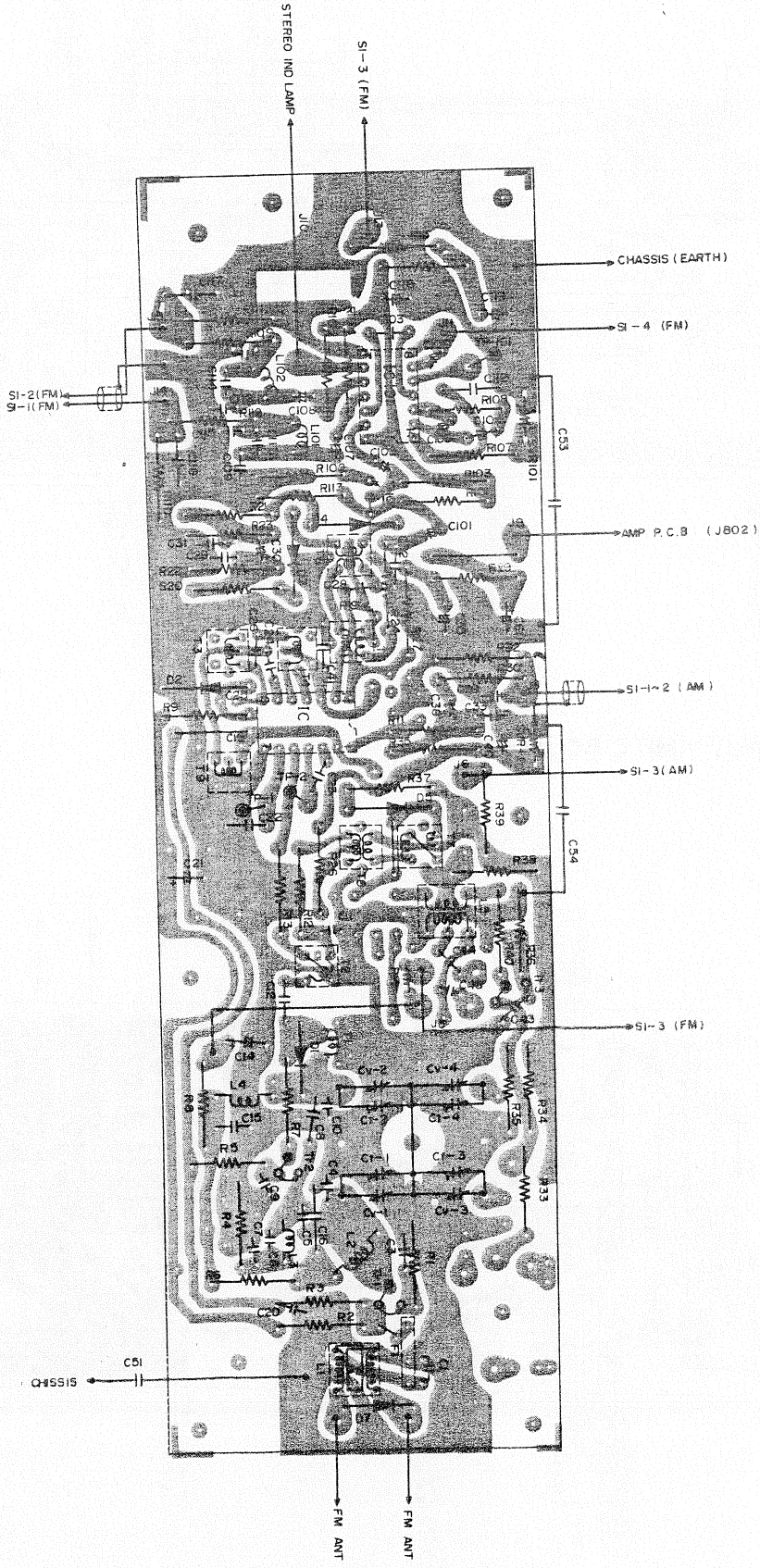
Item	Part No.	Description
1	A.107043	Centre Spindle Assembly
2	B.110406	Control Arm Assembly
3	A.108399	Tube End
4	A.111187	Pick-Up Body Sub Assembly
5	A.106652	Screw (Pick-Up Pivot)
6	B.106660	Pick-Up Tube
7	A.111156	Pick-Up Arm Body Trim
8	D.110872	Pick-Up Head
9	A.110400	Pick-Up Head Trim
10	A.106573	Screw Type 6 BA × $\frac{3}{16}$" Rec. Countersunk Head
11	C.110397	Pick-Up Head
12	A.106775	Adaptor Plate
13	A.106506	Screw Type B No. 2 × $\frac{1}{8}$" Rec. Pan Head
14	A.103587	Solder Tag
15	A.104306	Sleeve
16	A.109551	Screw Type A No. 4 × $\frac{1}{4}$" Rec. Pan Head
17	A.109551	Screw Type A No. 4 × $\frac{1}{4}$" Rec. Pan Head
18	A.106504	6 BA External Lockwasher
19	A.108344	Balance Adjusting Screw
20	A.106745	23"Quin Pick-Up Lead
21	A.105624	Pick-Up Spindle Nut
22	A.108382	Spring (Hinge Retainer)
23	A.108381	Pick-Up Pivot
24	A.106205	Circlip
25	A.108384	Hinge Bracket Riveting Assembly
26	A.103790	Pick-Up Balance Spring
27	A.105669	Pick-Up Balance Spring
28	A.111157	Balance Adjuster
29	A.106917	6 BA × $\frac{3}{8}$" Cheese Head Screw
30	A.106654	Pick-Up Adjuster
31	A.106047	Locking Sleeve
32	A.105712	Adjusting Screw
33	A.105907	Nut
34	B.111152	Pick-Up Rest
35	A.106664	Pick-Up Clip
36	C.111150	Control Cover
37	A.108911	Screw Type BT 6-20 × $\frac{1}{8}$" Rec. Pan Head
38	A.106510	Screw Type B No. 6 × $\frac{1}{4}$" Rec. Pan Head
39	C.106138	Control Housing
40	B.106904	Anti-Skate Control Assembly
41	B.110360	Knob
42	A.104189	Transit Screw
43	B.110360	Knob
44	B.110360	Knob
45	A.106473	Spring
46	A.106090	Spring (Unit Mounting)
47	A.106089	Spring Cup
48	A.106813	Spring (Anti-Skate Control)
49	A.102166	Retaining Clip
50	B.108113	Speed Change Slide Assembly
51	A.105826	Spring (Switch Lever)
52	A.105267	Screw Type BT 4-24 × $\frac{5}{16}$" Rec. Pan Head
53	A.106812	Spring (Anti-Skate)
54	B.106815	Spring Anchor
55	B.106405	Switch Link
56	A.107863	Screw Type BT 4-24 × $\frac{7}{16}$" Rec. Pan Head
57	A.106816	Washer
58	A.106129	Switch Lever
59	B.106119	Reject Slide
60	B.106143	Selector Slide
61	A.105267	Screw Type BT 4-24 × $\frac{5}{16}$" Rec. Pan Head
62	A.105267	Screw Type BT 4-24 × $\frac{5}{16}$" Rec. Pan Head
63	A.106193	Reject Plate Assembly
64	A.102109	Circlip
65	A.100785	Circlip
66	A.108461	Roller
67	A.108084	Slide Pin
68	A.108033	Detent Plate
69	A.108891	Selector Pivot Spring
70	A.108075	Spring (Detent Plate)
71	A.108283	Reject Lever Assembly
72	A.106134	Reject Link
73	A.102109	Circlip
74	A.106627	Spring (Detent)
75	A.105660	Control Washer
76	A.106510	Screw Type B No. 6 × $\frac{1}{4}$" Rec. Pan Head
77	A.100762	Circlip
78	B.105592	Cut-Off Lever
79	A.102623	Spring (Cut-Off Lever)
80	A.102251	Retainer
81	A.101526	Circlip
82	B.108036	Selector Lever
83	A.102128	Circlip
84	A.100785	Circlip
85	B.108085	Quadrant Assembly
86	A.108334	Circlip
87	A.106697	Pick-Up Raising Spindle Assembly
88	A.106966	Washer
89	A.104077	Circlip
90	B.108168	Operating Plate Assembly
91	A.102109	Circlip
92	A.108078	Spring (Selector Drive)
93	A.102109	Circlip
94	B.105597	Feed Lever Link
95	A.105827	Spring (Link Return)
96	A.106968	Spring (Feed Lever Link)
97	A.100785	Circlip
98	A.108077	Spring
99	A.103290	Washer
100	A.106980	Spring (Operating Plate)
101	A.107419	$\frac{3}{16}$"Diameter Ball Bearing
102	B.106962	Actuating Slide
103	A.105901	Spring (Actuating Slide)
104	A.100762	Circlip
105	B.108073	Toggle Wheel
106	A.108854	Spring Clip
107	A.106512	Screw Type BT 4-24 × $\frac{3}{8}$" Rec. Pan Head
108	A.107004	Support Spring
109	A.106965	Support Bracket
110	A.107154	$\frac{3}{16}$"Diameter Ball Bearing
111	A.102109	Circlip
112	A.104861	Spacer
113	A.110985	Spring (Control Spindle)
114	A.106510	Screw Type B No. 6 × $\frac{1}{4}$" Rec. Pan Head
115	A.104882	Retaining Clip
116	A.106510	Screw Type B No. 6 × $\frac{1}{4}$" Rec. Pan Head
117	A.106510	Screw Type B No. 6 × $\frac{1}{4}$" Rec. Pan Head
118	A.105678	Circlip
119	C.108483	Main Sub Plate Riveting Assembly
120	A.106510	Screw Type B No. 6 × $\frac{1}{4}$" Rec. Pan Head
121	A.102128	Solder Tag
122	A.108083	Spring (Cut-Off Slide)
123	A.108034	Cut-Off Slide
124	A.102133	Cam Gear Riveting Assembly
125	A.106819	Actuating Pawl Assembly
126	A.102110	Circlip
127	A.100762	Circlip
128	A.106089	Spring Cup
129	A.106090	Spring (Unit Mounting)
130	A.100762	Circlip
131	A.101620	Washer
132	A.101623	Jockey Pulley Assembly
133	A.101620	Washer
134	A.105824	Spring (Jockey Pulley)
135	A.105965	Jockey Arm Riveting Assembly
136	A.105619	Adjusting Screw
137	A.108401	7"—3mm PVC Sleeving
138	A.100762	Circlip
139	A.101646	Motor Mounting Washer
140	A.102181	Rubber Mounting
141		Four Pole Motor Assembly (FP20-4)
142	A.104865	Insulating Strip
143	A.103096	Amp Plug Housing
144	A.106749	4 BA Tag Lockwasher
145	A.105263	Screw Type BT 6-20 × $\frac{3}{8}$" Rec. Pan Head
146	A.102718	Cable Clamp
147	A.106513	3"—5mm PVC Sleeving
148	A.106512	Screw Type BT 4-24 × $\frac{5}{8}$" Rec. Pan Head
149	A.108182	Switch Cover
150	A.108183	Switch Cover
151	A.200444	Contact (Domed)
152	A.200445	Contact (Flat)
153	A.200450	Switch Dolly
154	A.200446	Solder Tag
155	B.108181	Switch Body
156	A.106015	Retaining Strip
157	A.106510	Screw Type B No. 6 × $\frac{1}{4}$" Rec. Pan Head
158	A.102128	Circlip
159	A.106034	Speed Change Bracket
160	A.105831	Spring (Raising Spindle)
161	B.106021	Speed Change Arm
162	A.102109	Circlip
163	B.110364	Raising Cam
164	A.108589	Raising Spindle
165	A.102128	Circlip
166	A.106510	Screw Type B No. 6 × $\frac{1}{4}$" Rec. Pan Head
167	A.106206	Tag Mounting Strip
168	A.102126	Solder Tag
169	A.102816	Phono Socket
170	A.102126	Solder Tag
171	A.106510	Screw Type B No. 6 × $\frac{1}{4}$" Rec. Pan Head
172	A.106089	Spring Cup
173	A.102166	Retaining Clip
174	A.106090	Spring (Unit Mounting)
175	B.108328	Mainplate Sub Assembly
176	A.104189	Transit Screw
177	A.102595	Washer
178	A.102109	Circlip
179	A.106090	Spring (Unit Mounting)
180	A.106089	Spring Cup
181	A.102058	Damping Washer
182	A.101506	Thrust Washer
183	A.101649	Ballrace
184	A.101506	Thrust Washer
185	D.111148	Turntable Moulding (C123R1) or D111649 Turntable Moulding (C123R2)
186	A.111155	Turntable Trim
187	A.111154	Turntable Trim
188	A.111153	Turntable Centre Disc
189	A.102109	Circlip
190	A.106894	Selector Pivot
191	A.106893	Washer
192	A.106510	Screw Type B No. 6 × $\frac{1}{4}$" Rec. Pan Head
193	A.102126	Solder Tag
194	A.106474	Raising Arm
195	A.108833	Hinge Bracket Riveting Assembly (includes item 196)
196		Restrictor Spring
197	A.108343	Screw Type BT 4-24 × $\frac{3}{8}$" Rec. Pan Head
198	A.110381	Knob
199	A.110408	Cap
200	A.110374	Trim
201	A.110373	Trim
202	A.106665	Raising Pad
203	A.106505	Grub Screw 6 BA × $\frac{1}{8}$" Pointed
204	A.106173	Pick-Up Rest Spring
205	A.108348	Circlip
206		'Custom Design' Head
207	A.110864	Pick-Up Head Trim

EXPLODED VIEW

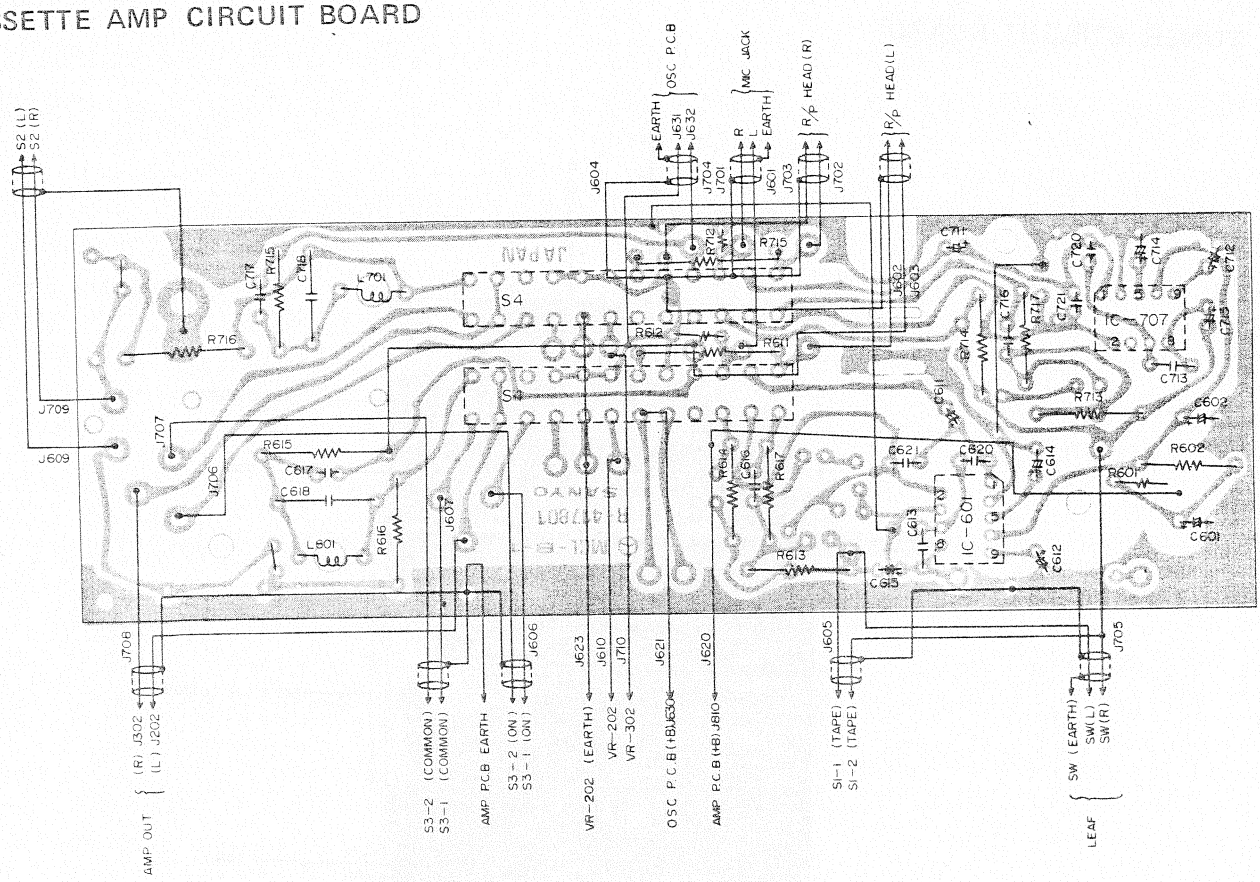
BSR
C123R2



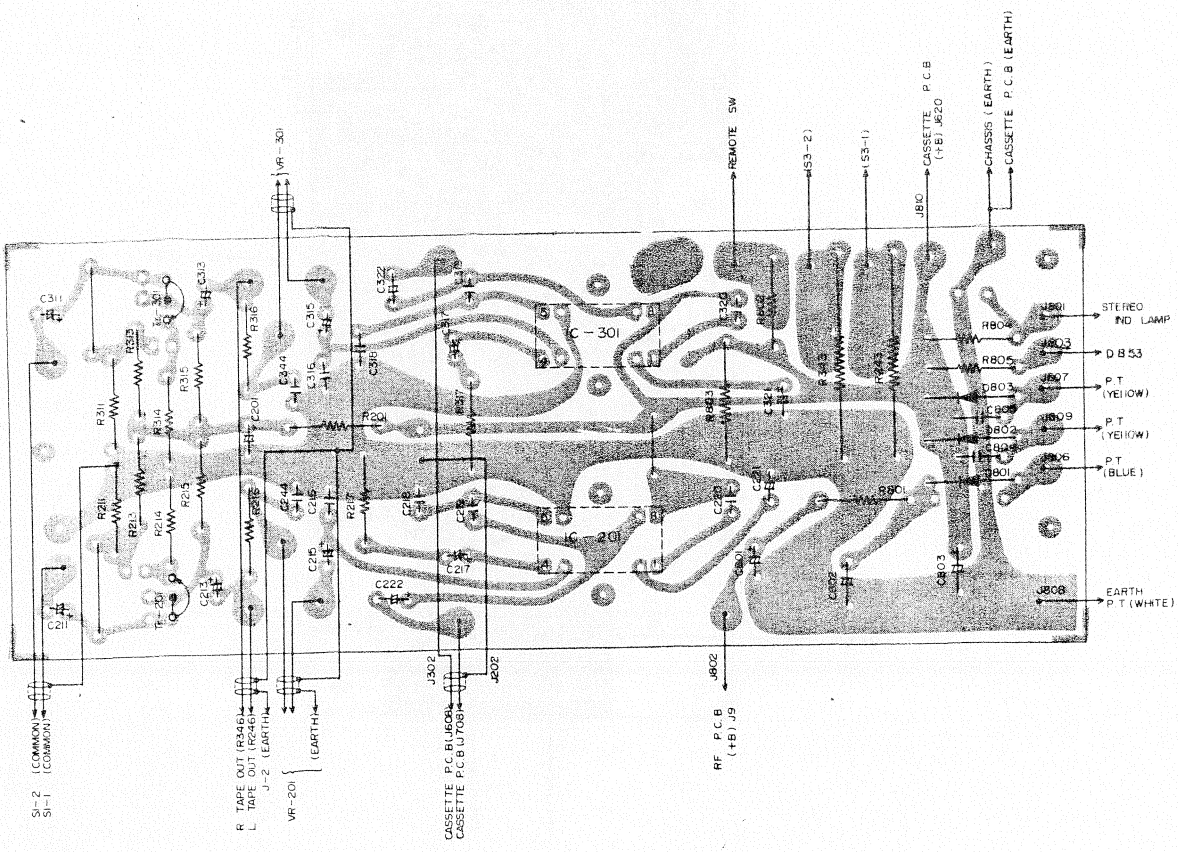
TUNER CIRCUIT BOARD

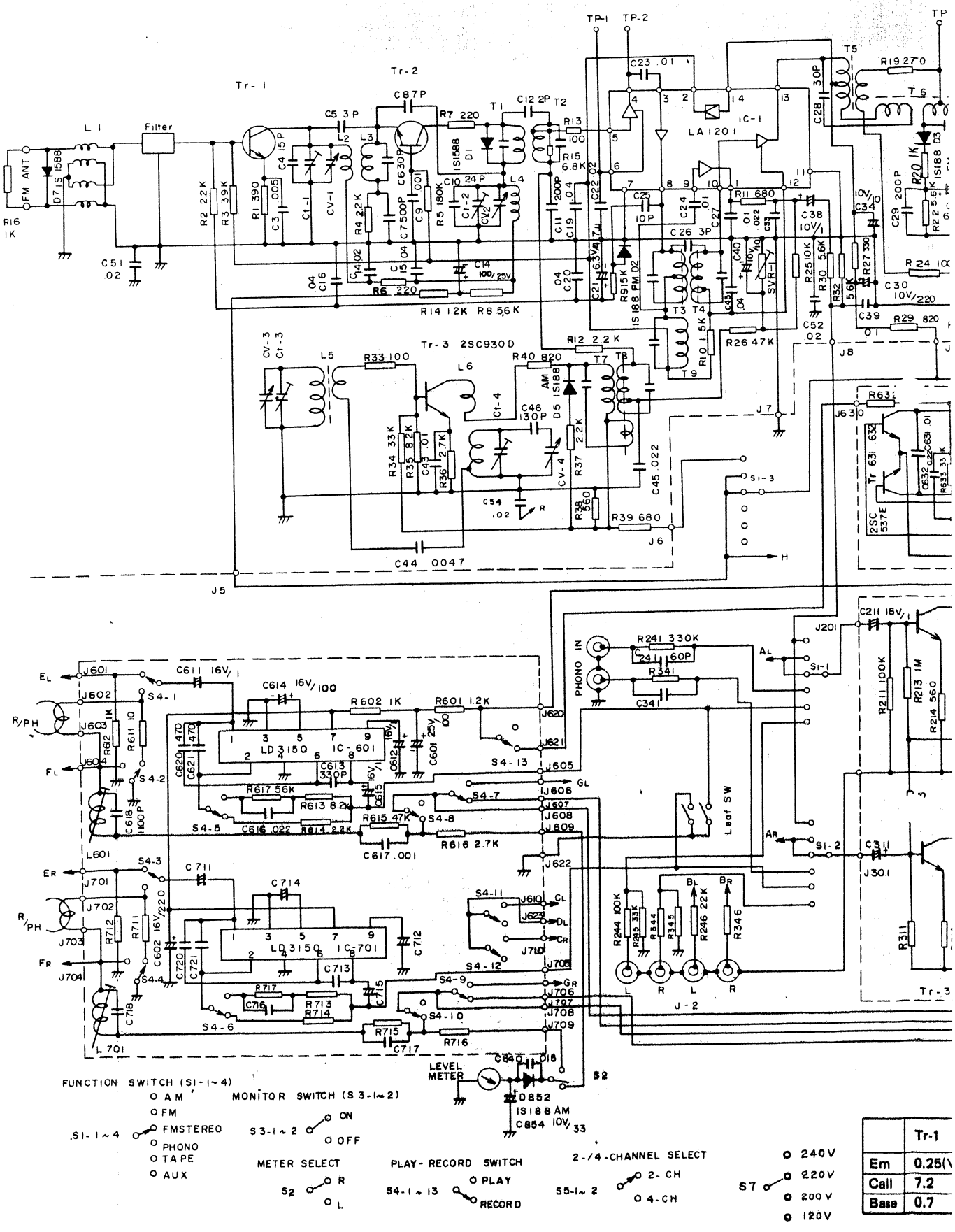


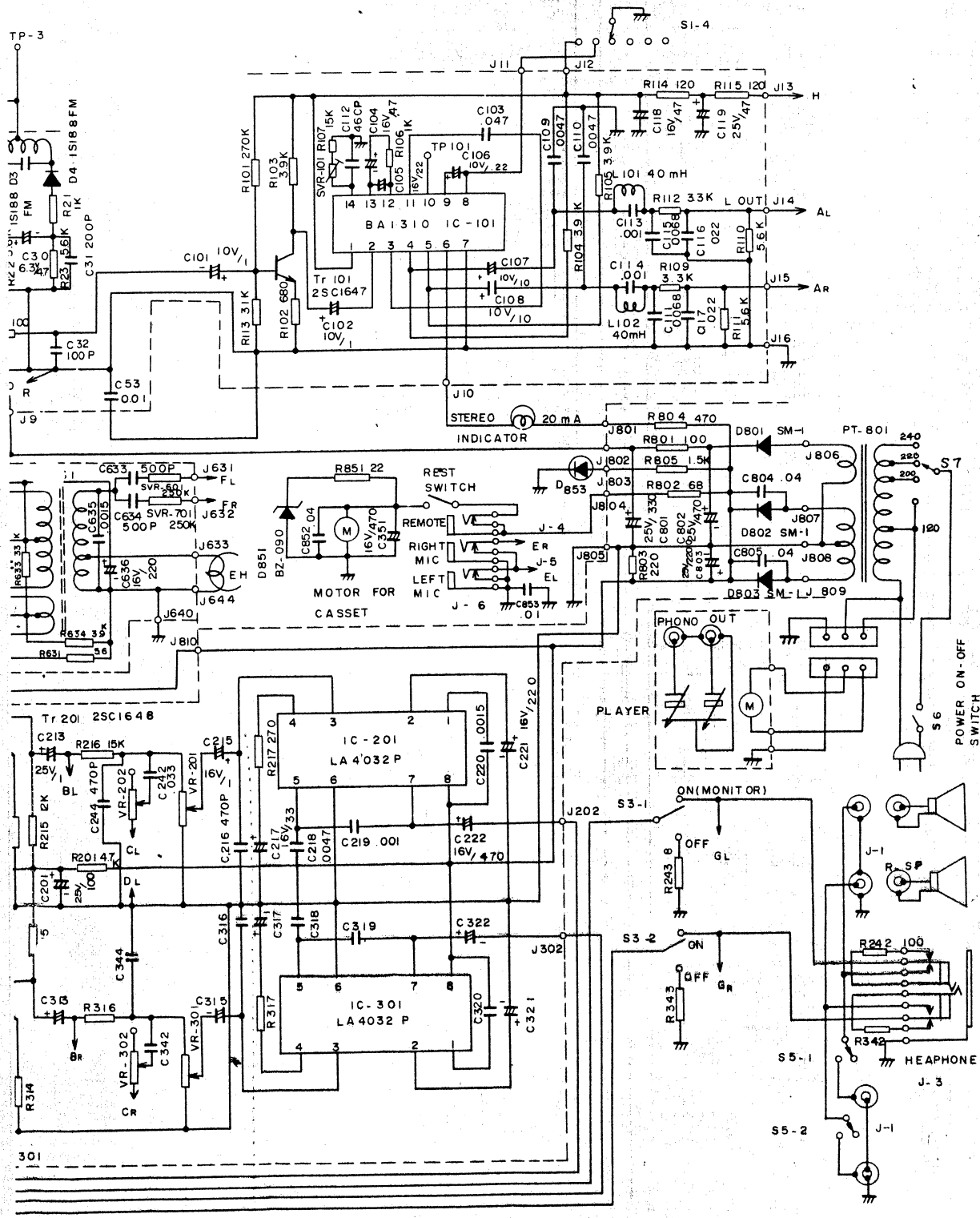
CASSETTE AMP CIRCUIT BOARD



AUDIO OUTPUT AMP CIRCUIT BOARD




FUNCTION SWITCH (S1-1~4)
AM
FM
FM STEREO
PHONO
TAPE
AUX
MONITOR SWITCH (S3-1~2)
ON
OFF
METER SELECT
R
L
PLAY-RECORD SWITCH
PLAY
RECORD
2-/4-CHANNEL SELECT
2-CH
4-CH
240V
220V
200V
120V
Tr-1
Em 0.25(V
Call 7.2
Base 0.7



IC Terminal Voltage (V)

	Tr-2	Tr-3	Tr-101	Tr-201/301	Tr-631/632
(V)	1.2(V)		0.75(V)		
	7.2		8.7		
	0.4		0.7		

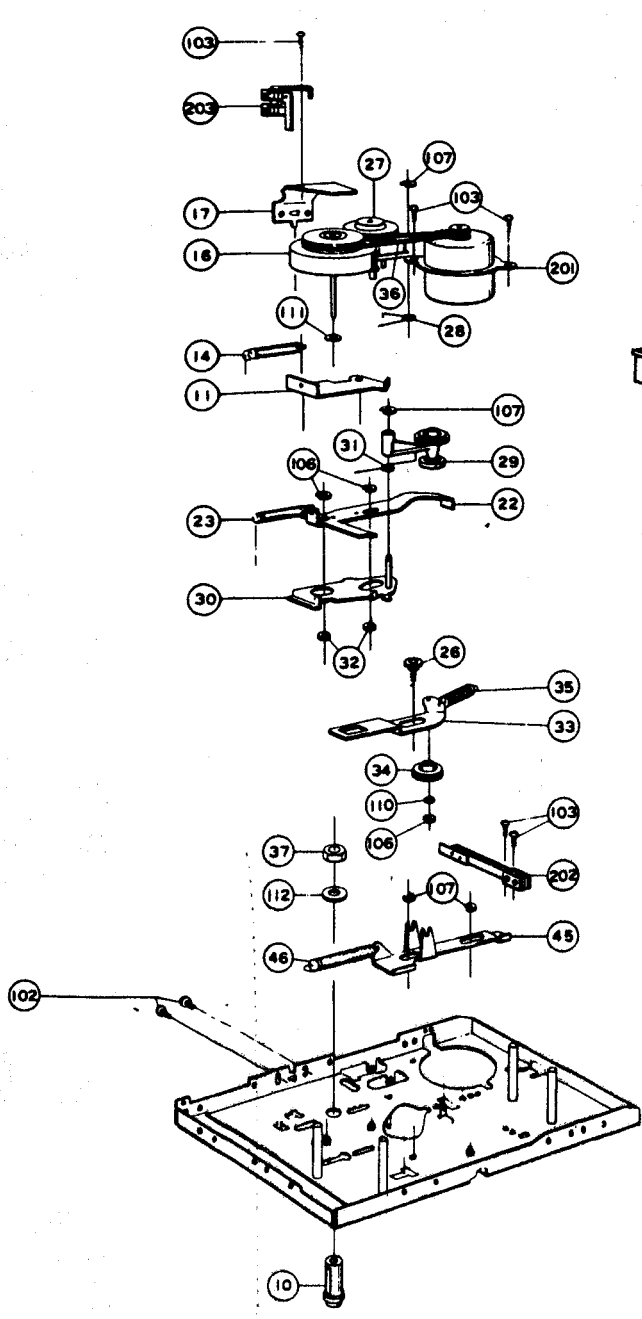
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
LA1201	2.3	3.1	0.7	1.0	0.95	0.65	0	3.1	0.6	2.1	0	2.0	7.2	7.4
BA1310	12.5	2.4	5.3	9.4	9.4	18.5	0	st1.3 0	1.3	1.6	1.9	1.95	1.95	3.2
LA4032P														
LD3150														

PARTS LIST (Cassette Mechanism)

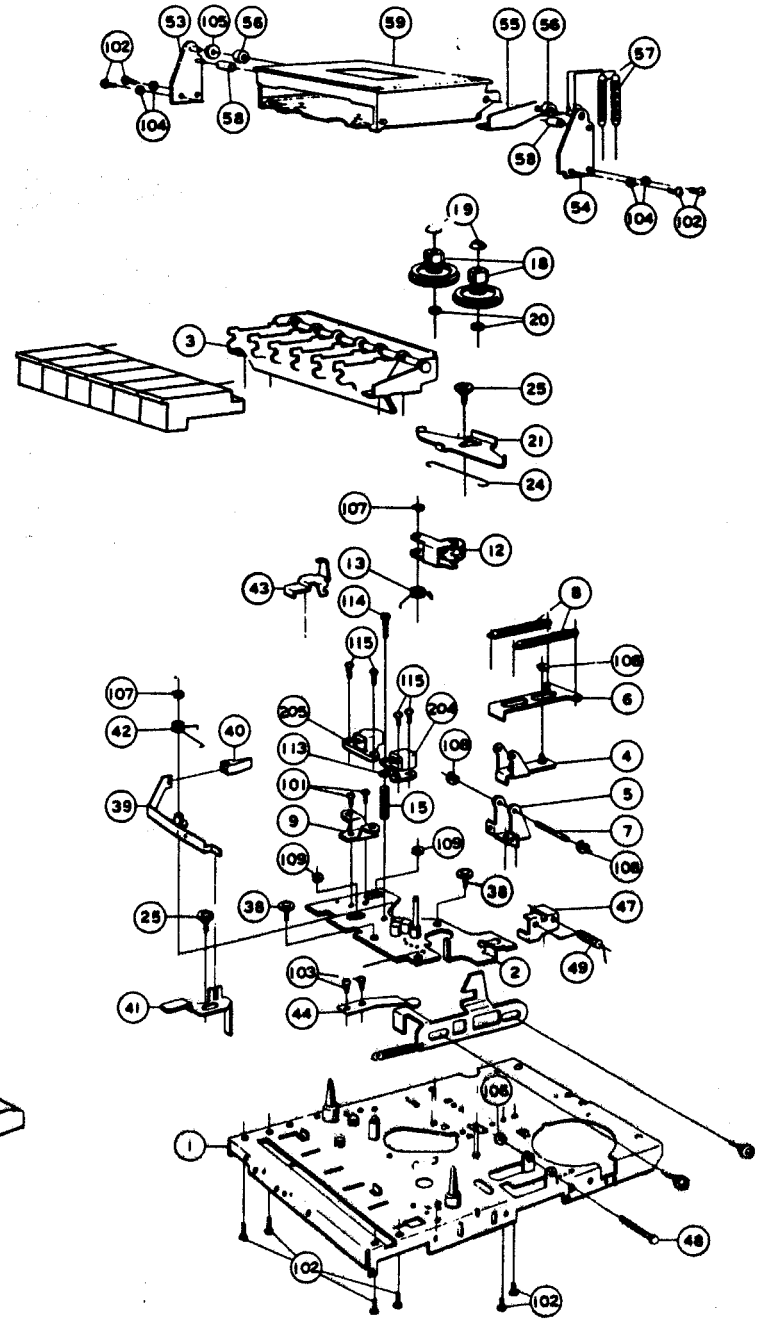
Key No.	Part No.	Description	Q'ty
CASSETTE MECHANISM (TM-68MSN3)			
1	141-0-3119-01403	Chassis Assembly	1
2	141-0-7319-06900	Slide Base Assembly	1
3	141-0-1619-14500	Select Button Assembly	1
	141-2-1619-23400	Select Button	(6)
4	141-0-7319-01600	Pushout Sub-plate Assy	1
5	141-2-5739-00200	Support, Cassette Pushout Plate	(1)
6	141-2-7319-02100	Plate, Cassette Pushout	(1)
7	141-2-7519-00500	Spindle, Cassette Push Sub-plate	(1)
8	141-2-8519-06900	Spring, Cassette Pushout Plate	(2)
9	141-2-3769-00700	Spacer, Head	1
10	141-0-5729-00200	Bushing Assembly, Capstan	1
11	141-0-7319-02200	Slide Base Arm Assembly	1
12	141-0-5419-01900	Pinch Roller Assembly	1
13	141-2-8519-09800	Spring, Pinch Roller	1
14	141-2-8519-00900	Spring, Slide Base	1
15	141-2-8519-04500	Spring, Head Adjust	1
16	141-2-5219-01300	Flywheel Capstan	1
17	141-0-3519-07901	Support Assembly, Flywheel	1
18	141-0-5319-00100	Reel Plate Assembly	2
19	141-2-5369-00400	Cap, Reel Plate	2
20	141-2-4539-00200	Washer, Spindle	2
21	141-2-7139-00200	Brake Plate	1
22	141-2-7319-00900	Slide Arm, Power Switch	1
23	141-2-8519-01200	Spring, Slide Arm, Power Switch	1
24	141-2-8529-00300	Spacer, Brake	1
25	141-2-4219-03700	Screw, Brake Plate	2
26	141-2-4219-03800	Screw, Rewind Roller Arm	1
27	141-0-5519-00100	Take-up Pulley Assembly	1
28	141-2-8519-01300	Spring, Take-up Pulley	1
29	141-0-5519-01200	Idler Assembly	1
30	141-0-7319-00300	Base Assembly, Idler	1
31	141-2-8519-01700	Spring, Idler	1
32	141-2-8529-00400	Roller, Idler Base	2
33	141-0-7319-00400	Arm Assembly, Rewind Roller	1
34	141-0-5519-00700	Rewind Roller Assembly	1
35	141-2-8519-01800	Spring, Rewind Roller	1
36	141-2-5649-00201	Square Belt, Driving	1
37	141-2-4179-00100	Nut	1
38	141-2-4219-04600	Screw, Slide Base	2
39	141-0-7419-03700	Stop Lever Assembly	1
	141-2-7419-10900	Stop Lever	(1)
40	141-2-8219-10200	Tape Contact	(1)
	141-2-5729-04700	Holder	(1)
41	141-2-7419-10801	Stop Lever	1
42	141-2-8519-22400	Spring, Stop Lever	1
43	141-2-8419-00600	Interlock Lever	1
44	141-2-8539-01700	Spring, Interlock Lever	1
45	141-2-8429-00700	Lever, RP Switch	1
46	141-2-8519-19100	Spring, RP Lever Switch	1
47	141-2-7439-00100	Stopper, Slide Base	1
48	141-2-7529-05200	Shaft, Slide Base Stopper	1
49	141-2-8519-06200	Spring, Slide Base Stopper	1
53	141-0-7439-00300	Holder Assy, Cassette Case Right	1
54	141-0-7439-00400	Holder Assy, Cassette Case Left	1
55	141-2-7419-03300	Lever, Cassette Case Left	1
56	141-2-3529-01800	Spacer, Cassette Case	2
57	141-2-8519-06700	Spring, Cassette Case Lever	2
58	141-2-4459-03500	Cushion, Cassette Case	1
59	141-0-1149-04500	Cassette Case Assembly	1
	141-0-7419-11400	Lever Switch Assembly	1
	4-2319-72040	Snap Switch	(1)
	141-2-7419-31300	Lever, Switch	(1)
	108-3-3903-00350	Tip, M3.0 x 3	(2)
201	4-5279-70351	Motor, DC,	1
202	4-2319-70010	Switch, Power	1
204	R-S0814	Record/Playback Head	1
205	R-S0815	Erasing Head	1

Key No.	Part No.	Description	Q'ty
MECHANISM SCREW			
101		Pan Hd. Screw, M2 x 4	2
102		Pan Hd. Screw, M2.6 x 5	8
103		Pan Hd. Screw, M2.6 x 6	8
104		Spring Washer, M2.6	4
105		Washer, M4	1
106		E Ring, 1.5ϕ	4
107		E Ring, 2ϕ	6
108		E Ring, 2.5ϕ	3
109		E Ring, 3ϕ	2
110		Washer, Mylar, 2 x 4 x 0.2t	1
111		Washer, Nylon, 2 x 7 x 0.3t	1
112		Round Washer, 8 x 14 x 0.5t	1
113		Washer, Nylon, 2 x 7 x 0.3t, Supply Reel	1
	141-2-4179-00100	Nut, Supply Reel mtg.	1
	141-2-4539-06700	Washer	1
	141-2-4219-04200	Screw	2
	141-2-4569-04300	Washer, Capstan Bushing	1
	141-2-4569-04300	Washer, Capstan Holder	1
114	101-3-2502-01211	Flat Head Screw, M2 x 12, Head Adjust	1

EXPLODED VIEW (CASSETTE MECHANISM TM68MSN3)



TOP VIEW



BOTTOM VIEW

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